

Remarks

Claims 1-19, 22-29, and 31 are pending in this application.

Claims 1-4, 6-19, 22-28, and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cunningham (U.S. Pat. No. 4,144,496) in view of Carey (U.S. Pub. No. 2002/0068612). Claim 5 stands rejected as unpatentable over Cunningham in view of Carey further in view of Komara (U.S. Patent No. 6,690,662). Claim 29 stands rejected as unpatentable over Carey.

Independent claim 1 recites a wireless communication system comprising a plurality of access points and a plurality of subscriber units. Each access point has at least one omnidirectional antenna forming a substantially uniform coverage area around the access point. Each subscriber unit has at least one directional antenna forming a directional coverage area. The directional coverage area is selectable from a plurality of directional coverage areas provided by the subscriber unit. Each subscriber unit communicates with a particular access point through transmissions between the subscriber unit directional antenna and the omnidirectional antenna for the particular access point.

Cunningham describes a mobile communication system and method for providing two-way radio communication links between fixed stations and mobile units. Cunningham states that a geographical service area is sectionalized through the use of omnidirectional and directional antennas. The Examiner acknowledges that Cunningham does not mention each subscriber unit having at least one directional antenna forming a directional coverage area.

The Examiner relies on Carey as a secondary reference and refers to Figures 3-4 and paragraphs 0066-0068. Carey describes wireless communication systems using a sectored coverage area. Carey does describe a fixed subscriber station including a directional antenna.

There is no motivation to combine Cunningham and Carey to achieve the claimed invention. Regarding Cunningham, Cunningham describes two-way communication links between fixed stations and mobile units, and accordingly, there is no suggestion to use mobile units having directional antennas forming directional coverage areas in Cunningham. After all, this goes completely against the traditional approach to providing mobile units, which would employ omnidirectional telephone antennas as opposed to directional antennas. The proposed modification to Cunningham would clearly change the principle of operation, and as such, is not appropriate.

Regarding Carey, although Carey mentions a fixed subscriber station with a directional antenna, it is important to note that Carey is describing a fixed subscriber station. To the extent that the fixed subscriber station in Carey includes a directional antenna, there is no suggestion that such a directional antenna would be usable in a mobile unit. Thus, Carey does not suggest the use of a directional antenna in a mobile unit (the mobile units in Cunningham). And, any attempt to do so would change the principle of operation in Cunningham.

Put another way, Cunningham and Carey describe two very different communication systems, and there is no motivation to mix and match features of these systems with each other in a way to achieve the claimed invention. After all, absent improper hindsight, there can be no motivation to use directional antennas in the mobile units of Cunningham. And in Carey, although a directional antenna is used, this is in a fixed subscriber station, and there is no suggestion to use the directional antenna in mobile units such as those found in the system of Cunningham. Regarding Komara, the Examiner has only relied on this reference for limited purposes, and Komara does not overcome the shortcomings of Cunningham and Carey.

For reasons given above, independent claim 1 is believed to be patentable.

Claims 2-13 are dependent claims and are also believed to be patentable.

Independent claim 14 recites a method of wireless communication. The method comprises transmitting downlink information in a substantially uniform coverage area around each of a plurality of access points, and receiving the downlink information at a subscriber unit. The method further comprises transmitting uplink information in a focused coverage area from the subscriber unit, and receiving the uplink information at one of the access points. Information is routed between the plurality of access points by receiving the information in a distribution point and sending the information to an access point in communication with the distribution point if the information is destined for a subscriber unit in communication with the access point. Otherwise, the information is forwarded to another distribution point in communication with the distribution point.

Cunningham does not describe transmitting uplink information in a focused coverage area from the subscriber unit as claimed. As mentioned above, Cunningham describes two-way radio communication links between fixed stations and mobile units. There is no suggestion of subscriber units having directional antennas, and there is no suggestion of subscriber units transmitting uplink information in a focused coverage area from the subscriber unit as recited by claim 14. For reasons noted above, Carey does not overcome this deficiency. Further, with regard to the cited routing action, the Examiner acknowledges that Cunningham does not describe this claimed feature.

Applicants contend that Carey does not overcome this further deficiency. The Examiner refers to paragraphs 0047-0048 in Carey. The Examiner also makes reference to Figure 1C. Carey illustrates coupling the network operations center 42 and external data network 48. Claim 14 specifically recites routing actions between access points, using distribution points, and this is not suggested by Cunningham or Carey in the claimed combinations.

Claims 15-19 and 22-28 are dependent claims and are also believed to be patentable.

Independent claim 29 recites a wireless communication system comprising a plurality of access points, a network of distribution points, and a plurality of subscriber units. For reasons given above, Cunningham and Carey fail to suggest this recited combination of features. For example, claim 29 recites “each subscriber unit transmitting information packets over a focused directional coverage area.” As mentioned above, this feature is not described by Cunningham, and it appears that the Examiner has acknowledged this. Regarding Carey, Carey only describes a directional antenna and a fixed subscriber station and there is no suggestion to combine features of Cunningham with features of Carey in the way proposed by the Examiner absent improper hindsight reconstruction. Further, note that claim 29 recites distribution points and routing information packets between the access points.

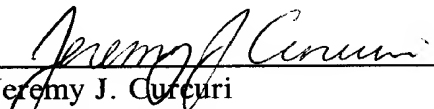
Finally, independent claim 31 recites a method of communicating comprising establishing a plurality of access points. Each access point has an omnidirectional antenna. The method further comprises establishing a channel between one of the access points and one of a plurality of subscriber units by selecting one of a plurality of antenna directions in the subscriber unit. The selected antenna direction implements a directional antenna. The method further comprises transmitting information packets in a uniform coverage area around each access point, and receiving information packets at each access point. Each received information packet is transmitted from the directional antenna. There is no motivation to combine the cited references to achieve the invention as defined by claim 31. For example, claim 31 recites the selected antenna direction in the subscriber unit implementing a directional antenna.

For reasons given above, the claims are believed to be in condition for allowance and such action is respectfully requested.

The amount of \$120.00 is enclosed to cover the petition fee. Please charge any additional fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

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